ONESuit® Shield
User Guide and Technical Manual

When it comes to safety, there's only ONE choice

SEI Certified Model – NFPA 1994 Class 2 (2012 ed.)
Certified Model – NFPA 1992 (2012 ed.)

SAINT-GOBAIN

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SECTION 1: Introduction to ONESuit® Shield

ONESuit Shield — High performance "Level B" style ensemble designed to meet the real-world needs of those who work in the most dangerous environments.

ONESuit Shield offers:

- Dual standard protection; certified to NFPA 1994, Class 2 and NFPA 1992 standards
- Protection from exposure to chemical/biological agents and industrial chemicals in liquid form
- High strength material providing exceptional durability
- Increased mobility and comfort from thin flexible fabric membrane
- Unique form-fitting face seal to ensure a dependable mask interface
- Ease of storage and handling due to compactable design
- Compatibility with both the original ONEGlove® Hazmat and the next generation ONESUIT® Hazmat Glove; both offering outstanding protection and dexterity

Compliance Statements

ONESuit Shield is certified by the Safety Equipment Institute (SEI) to the following NFPA standards:

- NFPA 1994 Class 2 – Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents (2012 Edition)
- NFPA 1992 – Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies (2012 Edition)

NOTE: *Proper use is consistent with:*

- *NFPA 1500 – Standard on Fire Department Occupational Safety and Health Program*
  - *– For users in the United States, 29 CFR 1910.132, "Personal Protective Equipment"*
  - *– For users in other countries, consult national or other applicable personal protective equipment regulations*

Certified Ensemble Components

To comply with the certification standards, only the following detachable components may be worn with the garment to maintain product compliancy:

NOTE: *Only one component from each category (glove, boot, respirator/ SCBA) needs to be worn in conjunction with the garment element (in any combination).*

Glove System:

- Next generation ONESUIT® Hazmat Glove
- Original ONEGlove® Hazmat

Footwear:

- Tingley HazProof® Boot – (Model #'s: 82330 – orange, 82331 – black)
- OnGuard HazMax® Boot – (Model #: 87012)

Breathing Systems (NFPA 1981-2007):

- MSA Ultra® Elite Face Piece – (Model #'s: 7-935-7, 7-935-8, 7-935-9)
  - – MSA FireHawk® M7 Air Mask SCBA
  - – MSA FireHawk® M7 Responder Air Mask SCBA
- Scott AV3000 Face Piece – (Model #'s: 805337-11, 805337-12, 805337-13, 805808-01, 805808-02)
  - – Scott Air-Pak®/Air-Pak® 75™ CBRN SCBA
  - – Scott Air-Pak®/NxG7™ CBRN SCBA
- Scott AV3000 SureSeal Face Piece – (Model #'s: 805337-31, 805337-32, 805337-33)
  - – Scott Air-Pak®/Air-Pak® 75™ CBRN SCBA
  - – Scott Air-Pak®/X3 CBRN SCBA

Breathing Systems (NFPA 1981-2013):

- MSA Ultra® Elite Face Piece – (Model #'s: 7-1366-7, 7-1366-8, 7-1366-9)
  - – MSA FireHawk® M7 Air Mask SCBA
  - – MSA FireHawk® M7 Responder Air Mask SCBA
- Scott AV3000 HT Face Piece – (Model #'s: 805337-34, 805337-35, 805337-36)
  - – Scott Air-Pak®/Air-Pak® 75™ CBRN SCBA
  - – Scott Air-Pak®/X3 CBRN SCBA

[1] ONEGlove® is a registered trademark of Saint-Gobain Corporation.

SECTION 2A: User Guide – Pre-use Information

Safety Considerations

All protective equipment needs to be well maintained in order to function properly; ONESuit Shield is no exception. The suit must be thoroughly inspected for any physical damage prior to use. Remove from service if the suit fails inspection.

Users must read this guide in detail, and should take the following precautions into consideration:

1. Avoid direct flame contact. The suit does not provide protection against open flame conditions.
2. Avoid continuous exposure to any known hazardous substance. Do not intentionally expose the suit to a constant liquid hazard.
3. If the following symptoms are experienced, the user **MUST** leave the "hot zone": fever, nausea, dizziness, eye irritation, breathing difficulty, excessive fatigue, or any unusual odor or taste.

NOTE: *Most performance properties of this protective ensemble or its individual elements cannot be tested by users in the field.*

Limitations of Use

This product is recommended for use as described in the standard to which it is certified. If it is suspected that this product has come into contact with a hazardous substance, follow appropriate departmental procedures for decontamination and/or disposal.

Marking Recommendations and Restrictions

It is recommended that this product not be marked in any way by the user. Potential damage to the suit caused by improper marking can lead to diminished performance properties.

If marking is desired, please specify during the ordering process for permanent attachment of custom marking by the factory.

Shelf Life

The shelf life for ONESuit Shield is 10 years when following the specified storage conditions, maintenance and inspection practices.

Ensembles must be visually inspected prior to each use and if there is any question about the condition of the product, discontinue use immediately.

Recommended Undergarments

Due in part to the excellent chemical resistance and permeation properties of ONESuit Shield, there is very little exchange of heat between the body and the outside atmosphere. Therefore, the most appropriate garments recommended to be worn inside the suit will depend on the temperature conditions of the atmosphere and the mobility demands of the mission. Certain synthetic and/or natural fabrics that wick moisture away from the body will aid in the comfort of the user.

SECTION 2B: User Guide – Preparation for Use

Sizing

ONESuit Shield has been sized to fit a wide range of users. Please refer to the following table and chart to assist in finding the appropriate size. The recommended suit sizes take into account that the end user will be wearing industrial-rated underclothing with a light jacket underneath the suit. It is recommended that these items are worn when trying on a suit to determine the best size.

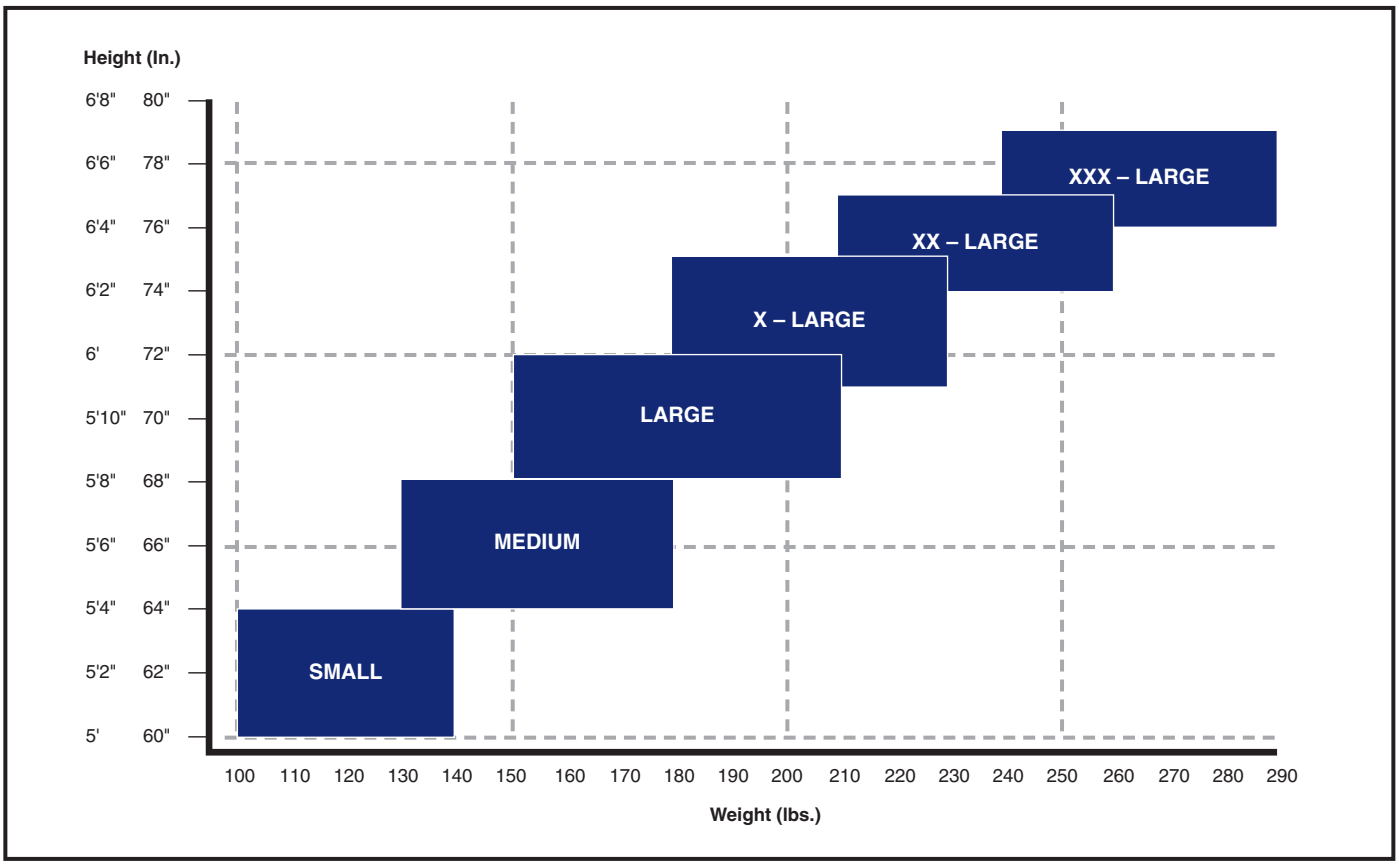
NOTE: *The information below is just a guide; the end user should always choose the specific ensemble size that offers the greatest comfort with the least restrictions. If in between sizes, round up.*

ONESuit Shield: Sizing Specification Sheet

ONESuit Shield Product Code	Suit Size	Height (ins.)	Weight (lbs.)	Standard ONEGlove Hazmat Glove Size	Standard ONESUIT Hazmat Glove Glove Size	Recommended Boot Size
1S-B-SM	Small	60-64	100-140	8 (Medium)	8 (Medium)	6-9
1S-B-MD	Medium	64-68	130-180	9 (Large)	8 (Medium)	8-13
1S-B-LG	Large	68-72	150-210	9 (Large)	9 (Large)	8-13
1S-B-XL	X-Large	71-75	180-230	10 (X-Large)	10 (X-Large)	9-14
1S-B-2X	XX-Large	74-77	210-260	10 (X-Large)	11 (2X-Large)	10-15
1S-B-3X	XXX-Large	76-79	240-290	11 (XX-Large)	11 (2X-Large)	10-15

NOTE: *When ordering, please specify size of glove if different than standard.*

ONESuit Shield: Sizing Diagram



Inspection Details

A visual inspection of this product must be performed and passed prior to each use.

- Inspect all areas of the suit for cuts or damage, including all seams, garment material and face seal area inside and out.
- Confirm that gloves are securely attached to the suit. Inspect the gloves per the ONEGlove Hazmat user guide.
- Inspect the zipper for proper function, and that it is not becoming detached from the suit. **NEVER** force the zipper, as this could damage the teeth and compromise the integrity of the ensemble.

SECTION 2C: User Guide –Donning/Doffing Information

Donning and Doffing Procedures

ONESuit Shield's design allows it to be donned and doffed with great ease.

- Refer to the sizing section to ensure the best size suit is selected by the user.
- Be sure that the selected suit has passed visual inspection as required.
- Assistance must be available to help during the don and doff procedures.
- Be sure there are no items worn on the body or clothing that could cause damage to the inside of the suit, such as exposed zippers, rings, watches, badges, belts, etc.

To don the suit:

1. Choose a location that offers a clean place to stand and has either a bench or chair.
2. While seated, place both legs into the suit with only socks covering the feet. Insert feet into boots.
3. Put on facemask and adjust straps, ensuring a tight and comfortable fit.
4. Stand up, and insert arms into sleeves until hands are properly inserted into the gloves.
5. With assistance, pull the hood over the head with the "chin" of the facemask protruding out of the face seal opening.
6. Carefully pull the face seal over the entirety of the facemask making sure the interface between the face seal of the hood and the mask lays flat against each other (make sure to inspect the entire hood area, pulling the hood gently towards the back of the head should there be any fold-overs of material near the face seal area).

7. While standing straight, zip suit 75% of the way. The user shall then slowly crouch, exhausting the air out of the suit.
8. Stand up and zip suit until completely closed, then close the flap over the zipper.
9. Put on the SCBA pack and adjust until comfortable. Inspect the face seal area, ensuring a sound connection, as well as all other areas of the suit. In effort to conserve air, attach the airhose to the facemask immediately prior to departing for mission duties.

To doff the suit:

1. Remove airhose from the facemask and remove SCBA pack.
2. Separate the flap and unzip the zipper completely.
3. Remove arms from sleeves while keeping the facemask/hood attached.
4. Apply pressure to mask so that the hood seal can be removed from the mask without interfering with the seal against the face. Reconnect air-hose to mask if necessary.
5. Exit the suit and follow the cleaning/ storage/ disposal instructions.

SECTION 2D: User Guide – Maintenance and Cleaning Information

Cleaning Instructions/ Precautions

ONESuit Shield should be cleaned after each use when it has been worn for routine operations but not subjected to any chemical or biological contamination.

For cleaning the suit, liquid hand dish washing detergent may be used along with a disinfectant at the ratio of 1 oz each per gallon of warm water. Using a soft clean rag, gently rub the cleaning solution over the entire inside and outside surfaces of the suit.

Rinse the entire inside and outside surfaces of the suit with warm water using either a soft clean rag or a gentle spray. To dry the suit, either lay the suit out so that the inside and outside surfaces receive ventilation, or place on a hanger.

WARNINGS: Do not use bleach as cleaning detergent! Do not use the suit if not cleaned and thoroughly dried!

Glove Replacement Procedure

If the gloves have been visibly damaged or worn and need to be replaced, please contact the manufacturer for specific instructions.

Maintenance Criteria

As long as the recommended storage practices are followed, there is no annual maintenance required for this suit. Prior to use, the suit must be inspected per the **Inspection** section, and if there are any questions about the condition of the product, discontinue use immediately. The suit is not repairable; therefore if it is ripped, torn, punctured or compromised in any way, the suit must be disposed of.

Decontamination Procedures

Refer to departmental procedures for decontamination practices and procedures. Following decontamination, the suit should be disposed of and not reused.

Recommended Storage Practices

ONESuit Shield should be stored in a safe and dry location, away from direct sunlight in a temperature environment maintained between 25°F (-4°C) and 110°F (43°C). The suit may be stored either in the supplied storage bag or on a hanger, and should always be stored with the zipper in the fully closed position with the protective flaps engaged. Be sure to follow the inspection guidelines as specified, even when the suit has not been in use.

Retirement and Disposal Criteria

ONESuit Shield is not recommended for use after chemical exposure. Refer to departmental procedures for retirement/disposal practices for this suit.

SECTION 3A: Technical Manual – Ensemble Details

Garment Material

ONESuit Shield utilizes Saint-Gobain's proprietary CORETECH® material technology, which incorporates high performance chemical resistance through the use of fluoropolymer layers.

Garment Construction

ONESuit Shield features a stitched construction and is "under-taped" to provide maximum protection from physical damage and direct chemical contact.

Attachments

- All garment seams are sewn and then protected by Coretech® seam tape.
- Face seal is stitched and chemically bonded to the garment material, with stitches protected by Coretech® seam tape.
- Gloves are semi-permanently attached using a ring and clamp assembly.
- Zipper is stitched to the garment material, with stitches protected by Coretech® seam tape.

Garment Elements

Closure

- The closure consists of a water-resistant zipper with garment material splash flaps that seal using hook-and-loop fastener strips. The zipper is installed for rear entry; a 36" opening is created when the zipper is open.
  - Tape Material: One side urethane coated polyester
  - Slider Material: Zinc alloy

Face Seal

- The face seal of the ensemble utilizes a rubber platform that prevents chemical permeation of contaminants as well as providing a strong/sturdy and flexible seal that maintains its integrity throughout the end user's full range of motion.
  - Face Seal: 60mil Rubber

SECTION 3B: Technical Manual – Component Descriptions

Gloves

ONESuit Shield offers two distinct options:
ONEGlove® Hazmat or ONESUIT® Hazmat Glove

- ONEGlove Hazmat - by Saint-Gobain Performance Plastics. Outstanding CBRN protective gloves featuring a single-layer construction offering excellent protection. The outer portion is made from KEVLAR®, ensuring the highest level of protection against both flame and heat. A moisture-management layer, made from NOMEX®, is incorporated on the inside of the glove to help with both comfort and feel. The barrier layer comprises a multi-layered fluoropolymer to provide the user protection against any chemical hazards he or she may come into contact with. ONEGlove Hazmat is available in the following sizes:
  - Small - p/n 22410M
  - Medium - p/n 22411M
  - Large - p/n 22412M
  - X-Large - p/n 22413M
  - XX-Large - p/n 22414M

- ONESUIT Hazmat Glove - by Saint-Gobain Performance Plastics. A high performance CBRN protective glove with unsurpassed comfort & dexterity that provides maximum protection against chemical and biological hazards. It is produced using Saint-Gobain's CORETECH barrier technology; the Fluoropolymer containing flexible laminate technology providing ultimate broad range chemical protection and utilizes selectively designed outer aramid fabrics that maximizes comfort while providing both physical and thermal protection. ONESUIT Hazmat Glove is available in the following sizes:
  - Small - p/n 33502M-ATS
  - Medium - p/n 33503M-ATS
  - Large - p/n 33504M-ATS
  - X-Large - p/n 33505M-ATS
  - 2X-Large - p/n 33506M-ATS

- *Please refer to the applicable glove user guide for detailed sizing and usage information.*

Footwear

For compliance with the NFPA 1994, Class 2 and 1992 certifications, ONESuit Shield must be worn with either Tingley HazProof®[2] or ONGUARD Hazmax®[3] protective boots. The boots are worn over integral booties made of garment material and are protected by integral splash flaps also made of garment material.

Tingley HazProof

- The Tingley HazProof boots feature a fire resistant PVC alloy boot material with a steel toe, steel shank, and a steel mid sole incorporated within a sure grip cleated outsole; (p/n 82330, 82331, sizes 7-13).

ONGUARD Hazmax

- The ONGUARD Hazmax boots feature a flexible PVC alloy boot material with a steel toe, steel shank, and a steel mid sole incorporated within an Ultragrip® Sipe Sole; (p/n 87012, 87014, sizes 6-15).

Head Protection

If head protection is required while wearing the suit, the user shall use a Type 1, Class G helmet as specified in ANSI Z89.1 and shall affix the helmet over the ensemble after it has been completely donned with the facemask. After securing the helmet, inspect the face seal area of the suit to ensure its proper fit against the face mask and adjust if necessary.

[2] HazProof® is a registered trademark of Tingley Rubber Corporation.
[3] HazMax® is a registered trademark of ONGUARD Industries.

Respirators/ SCBA Units

ONESuit Shield has been carefully designed to be compatible with the following specified face masks/ SCBA units.

Respirator/ SCBA Units

- A full face supplied air respirator, certified by the National Institute for Occupational Safety and Health (NIOSH), must be worn with ONESuit Shield (see standard requirements for literature).
- A CBRN Self Contained Breathing Apparatus (SCBA) shall be used with this suit, certified as compliant with NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services.
- **Only the following components/units are certified with ONESuit Shield:**

Breathing Systems (NFPA 1981-2007):

- MSA Ultra® Elite Face Piece – (Model #'s: 7-935-7, 7-935-8, 7-935-9)
  - – MSA FireHawk® M7 Air Mask SCBA
  - – MSA FireHawk® M7 Responder Air Mask SCBA
- Scott AV3000 Face Piece – (Model #'s: 805337-11, 805337-12, 805337-13, 805808-01, 805808-02)
  - – Scott Air-Pak®/Air-Pak® 75™ CBRN SCBA
  - – Scott Air-Pak®/NxG7™ CBRN SCBA
- Scott AV3000 SureSeal Face Piece – (Model #'s: 805337-31, 805337-32, 805337-33)
  - – Scott Air-Pak®/Air-Pak® 75™ CBRN SCBA
  - – Scott Air-Pak®/NxG7™ CBRN SCBA

Breathing Systems (NFPA 1981-2013):

- MSA Ultra® Elite Face Piece – (Model #'s: 7-1366-7, 7-1366-8, 7-1366-9)
  - – MSA FireHawk® M7 Air Mask SCBA
  - – MSA FireHawk® M7 Responder Air Mask SCBA
- Scott AV3000 HT Face Piece – (Model #'s: 805337-34, 805337-35, 805337-36)
  - – Scott Air-Pak®/Air-Pak® 75™ CBRN SCBA
  - – Scott Air-Pak®/X3 CBRN SCBA

SECTION 3C: Technical Manual – NFPA 1994 Test Data

NFPA 1994-2012 Edition Approval Data

NFPA 1994 Class 2 (2012 Edition) Approval Data - OPERATIONAL
FULL ENSEMBLE TESTING

Property	Method	Requirement	Result
Man-In-Simulant Test (MIST) - MSA Ultra® Elite	NFPA 1994: 8.2	$PPDF_{SYS}$ > 361.0	**1518.2**
Man-In-Simulant Test (MIST) - Scott AV3000/AV3000 SureSeal	NFPA 1994: 8.2	$PPDF_{SYS}$ > 361.0	**1478.9**
Man-In-Simulant Test (MIST) - ONESUIT Hazmat Glove	NFPA 1994: 8.2	$PPDF_{SYS}$ > 361.0	**1412.0**
Accommodates Head Protection	ANSI Z89.1	Pass	**Pass**
Overall Ensemble Function and Integrity - MSA Ultra® Elite	ASTM F1154	Pass	**Pass**
Overall Ensemble Function and Integrity - Scott AV3000/ AV3000 SureSeal	ASTM F1154	Pass	**Pass**
Overall Ensemble Function and Integrity - ONESUIT Hazmat Glove	ASTM F1154	Pass	**Pass**

NFPA 1994 Class 2 (2012 Edition) Approval Data - PHYSICAL
PHYSICAL PROPERTIES

Property	Method	Requirement	Result
Burst Strength – Garment Material	ASTM D751	> 156 N	**1144.5**
Puncture Propagation Tear Resistance – Garment Material, Machine Direction	ASTM D2582	> 31 N	**55.4**
Puncture Propagation Tear Resistance – Garment Material, Cross-Machine Direction	ASTM D2582	> 31 N	**49.6**
Cold Temperature Performance – Garment Material	ASTM D747	< 0.057 N·m	**0.014**
Cold Temperature Performance – Face Seal	ASTM D747	< 0.057 N·m	**0.013**
Seam Breaking Strength – Garment to Garment	ASTM D751	> 15 lbf/2in	**127.4**
Seam Breaking Strength – Face Seal to Garment Hood	ASTM D751	> 15 lbf/2in	**143.0**
Closure Breaking Strength	ASTM D751	> 15 lbf/2in	**34.3**
Viral Penetration Resistance – Garment Material	ASTM F1671	No Penetration	**Pass**
Viral Penetration Resistance – Garment to Boot Overflap Quad Seam	ASTM F1671	No Penetration	**Pass**
Viral Penetration Resistance – Face Seal Material	ASTM F1671	No Penetration	**Pass**
Viral Penetration Resistance – Face Seal to Garment Hood Seal	ASTM F1671	No Penetration	**Pass**

NFPA 1994 Class 2 (2012 Edition) Approval Data - CHEMICAL

GARMENT MATERIAL PERMEATION (After Flex and Abrasion)

Chemical or Biological Agent	Method	Requirement	Result
Distilled Mustard (HD)	NFPA 1994: 8.7	≤ 4.0 µg/cm²	**< 0.001**
Soman (GD)	NFPA 1994: 8.7	≤ 1.25 µg/cm²	**< 0.001**
Acrolein	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Acrylonitrile	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Ammonia	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Chlorine	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Dimethyl Sulfate	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**

GARMENT TO BOOT OVERLAP QUAD SEAM PERMEATION

Chemical or Biological Agent	Method	Requirement	Result
Distilled Mustard (HD)	NFPA 1994: 8.7	≤ 4.0 µg/cm²	**< 0.001**
Soman (GD)	NFPA 1994: 8.7	≤ 1.25 µg/cm²	**< 0.001**
Acrolein	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Acrylonitrile	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Ammonia	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Chlorine	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Dimethyl Sulfate	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**

FACE SEAL PERMEATION

Chemical or Biological Agent	Method	Requirement	Result
Distilled Mustard (HD)	NFPA 1994: 8.7	≤ 4.0 µg/cm²	**< 0.001**
Soman (GD)	NFPA 1994: 8.7	≤ 1.25 µg/cm²	**< 0.001**
Acrolein	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Acrylonitrile	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Ammonia	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Chlorine	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Dimethyl Sulfate	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**

FACE SEAL TO GARMENT HOOD SEAM PERMEATION

Chemical or Biological Agent	Method	Requirement	Result
Distilled Mustard (HD)	NFPA 1994: 8.7	≤ 4.0 µg/cm²	**< 0.001**
Soman (GD)	NFPA 1994: 8.7	≤ 1.25 µg/cm²	**< 0.001**
Acrolein	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Acrylonitrile	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Ammonia	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Chlorine	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**
Dimethyl Sulfate	NFPA 1994: 8.7	≤ 6.0 µg/cm²	**< 1.0**

Section 3D: Technical Manual – NFPA 1992 Test Data

NFPA 1992-2012 Edition Approval Data

NFPA 1992 (2012 Edition) Approval Data - OPERATIONAL
FULL ENSEMBLE TESTING

Test	Method	Requirement	Result
Liquid Tight Integrity Test 1 - MSA Ultra® Elite	ASTM F1359	No Penetration	**Pass**
Liquid Tight Integrity Test 1 - Scott AV3000/AV3000 SureSeal	ASTM F1359	No Penetration	**Pass**
Liquid Tight Integrity Test 1 - ONESUIT Hazmat Glove	ASTM F1359	No Penetration	**Pass**

NFPA 1992 (2012 Edition) Approval Data - PHYSICAL
PHYSICAL PROPERTIES

Property	Method	Requirement	Result
*See data listed for NFPA 1994 Class 2			

NFPA 1992 (2012 Edition) Approval Data - CHEMICAL
GARMENT MATERIAL PENETRATION (After Flex and Abrasion)

Chemical Agent	Method	Requirement	Result
Acetone	ASTM F903	> 60 min	**> 60**
Dimethylformamide	ASTM F903	> 60 min	**> 60**
Ethyl Acetate	ASTM F903	> 60 min	**> 60**
Nitrobenzene	ASTM F903	> 60 min	**> 60**
Sodium Hydroxide	ASTM F903	> 60 min	**> 60**
Sulfuric Acid	ASTM F903	> 60 min	**> 60**
Toluene	ASTM F903	> 60 min	**> 60**

FACE SEAL PENETRATION

Chemical Agent	Method	Requirement	Result
Acetone	ASTM F903	> 60 min	**> 60**
Dimethylformamide	ASTM F903	> 60 min	**> 60**
Ethyl Acetate	ASTM F903	> 60 min	**> 60**
Nitrobenzene	ASTM F903	> 60 min	**> 60**
Sodium Hydroxide	ASTM F903	> 60 min	**> 60**
Sulfuric Acid	ASTM F903	> 60 min	**> 60**
Toluene	ASTM F903	> 60 min	**> 60**

GARMENT TO GARMENT SEAM PENETRATION

Chemical Agent	Method	Requirement	Result
Sulfuric Acid	ASTM F903	> 60	**> 60**
Isopropyl Alcohol	ASTM F903	> 60	**> 60**

GARMENT TO BOOT OVERFLAP QUAD SEAM PENETRATION

Chemical Agent	Method	Requirement	Result
Sulfuric Acid	ASTM F903	> 60	**> 60**
Isopropyl Alcohol	ASTM F903	> 60	**> 60**

FACE SEAL TO GARMENT HOOD SEAM PENETRATION

Chemical Agent	Method	Requirement	Result
Sulfuric Acid	ASTM F903	> 60	**> 60**
Isopropyl Alcohol	ASTM F903	> 60	**> 60**

SECTION 4: Inspection Log

Purchase Date: _____ Purchased From: _____

Inspection Date	Inspected By	Garment/Seams	Face Seal	Gloves	Comments

Removed from Service Date: _____ Reason for Service Removal: _____

SECTION 5: Disclaimers and Warnings/ Warranty Information/ Limitation of Liability

Disclaimers and Warning

Information contained in this User Manual and Technical Guide (the "Technical Manual") is based on technical data and other information that Saint-Gobain Performance Plastics (SGPPL) believes to be reliable. Such information may be revised, amended or supplemented as additional data and/or information becomes available to SGPPL. Information contained in this Technical Manual is based on certain tests conducted on the fabric comprising the ONESuit® Shield (the "Suit") and on the finished ensemble.

Information contained in this Technical Manual is intended to be used by the purchaser of the suit to determine if the suit is suitable for such purchaser's specific use or application. Any such determination is made at the purchaser's sole risk and SGPPL assumes no liability in connection with the use of such information by any such purchaser.

NO SUIT CAN PROVIDE COMPLETE PROTECTION UNDER ALL CONDITIONS AND FOR ALL USES AND APPLICATIONS. IT IS THE SOLE RESPONSIBILITY OF THE PURCHASER TO DETERMINE THAT THE SUIT IS APPROPRIATE AND SUITABLE FOR THE PURCHASER'S SPECIFIC USE OR APPLICATION.

It is the responsibility of the purchaser and/or the end user of the suit to, among other things:

(1) Determine that the suit is suitable for such purchaser or end user's specific use or application;

(2) Understand the information contained in this Technical Manual relating to the proper use, handling, maintenance, storage and disposal of the suit;

(3) Read, review and understand the information contained in this Technical Manual and any other information supplied to the purchaser with respect to the suit;

(4) Confirm that the suit is appropriate for the purchaser and/or end user's specific use or application and complies with all government and industry standards and requirements applicable to the purchaser's use or application; and

(5) Diligently inspect the suit before and after each use for wear and damage. See additional information relating to inspection of the suit for wear and damage contained elsewhere in this Technical Manual.

CONTINUED ON BACK COVER

For more than four decades, Saint-Gobain Performance Plastics and its family of companies — including CHEMFAB, makers of the Challenge® line of technical fabrics — have supplied the world with innovative, high-performance polymer products for the most demanding applications.

Saint-Gobain is one of the world's top 100 industrial corporations, with a tradition of excellence dating back more than 350 years.

The company has a strong and ongoing commitment to sustainable habitat, energy efficiency and environmental solutions that protect and insulate.

General Disclaimer:
THIS WARRANTY REPLACES ALL OTHER ORAL OR WRITTEN WARRANTIES, LIABILITIES, OR OBLIGATIONS OF SGPPL. EXCEPT AS EXPRESSLY SET FORTH IN THE PRODUCT WARRANTY SET FORTH BELOW, SGPPL MAKES NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND AND SGPPL EXPRESSLY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, IN FACT OR IN LAW, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. PERTINENT STATE LAW WILL CONTROL FOR WHAT PERIOD OF TIME FOLLOWING THE SALE A CUSTOMER MAY SEEK A REMEDY UNDER THE IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Warning

If the suit becomes torn or frayed, is abraded, ripped or punctured, or the integrity of the suit is otherwise compromised in any way (collectively "Damaged"), the purchaser and/or end user should immediately discontinue use of the suit. Failure to discontinue use may result in injury or exposure to potentially harmful agents.

Warranty

SGPPL warrants to the purchaser and/or end user of the suit that the suit will be free from defects in material and workmanship for a period of ninety (90) days from the date of purchase (the "Product Warranty") provided that the suit has (i) been stored, used and maintained properly in accordance with all written instructions and recommendations contained in this Technical Manual provided by SGPPL with the Suit and (ii) not been Damaged, altered, modified or repaired.

EXCEPT AS EXPRESSLY SET FORTH IN THE PRODUCT WARRANTY, SGPPL MAKES NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND AND SGPPL EXPRESSLY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, IN FACT OR IN LAW, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The purchaser and/or end user's exclusive remedy for a suit which breaches the Product Warranty, regardless of the legal theory on which any such claim may be based (including without limitation contract, warranty, or tort), will be the replacement of such non-conforming or defective suit or, at SGPPL's election, the refund of the purchase price paid for such suit.

In the event that the purchaser and/or end user believes that the suit breaches the Product Warranty, the purchaser and/or end user must provide SGPPL with such suit and a detailed statement of the non-conformance or defect. SGPPL will advise the purchaser as soon after its investigation as possible, whether or not SGPPL concurs that the suit breaches the Product Warranty. If SGPPL, in its sole discretion, concurs that the suit breaches the Product Warranty, SGPPL will, as purchaser's sole and exclusive remedy, effect a replacement or refund with respect to such suit.

Limitation of Liability

To the fullest extent permitted by law, SGPPL shall not be liable to the purchaser, the end user or to any third party for any indirect, special, incidental or consequential damages arising out of the sale, delivery, use or disposal of the suit, including without limitation any such damages resulting from breach of warranty, negligence in design, manufacture, warning or testing, strict liability or otherwise, and including those arising from the sale, delivery, use or disposal of the suit sold to the purchaser by any person or entity. In no event shall SGPPL's liability for any loss or damage arising out of or resulting from the sale, delivery, use or disposal of the suit exceed the purchase price paid by the purchaser for such suit. Some states do not allow limitations on, or the exclusion of, incidental or consequential damages, so the above exclusions may not apply to you.

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